

Remarks

Reconsideration and further examination of the above-identified patent application in light of the present Amendment, Reply, and Remarks is respectfully requested.

A Petition for an extension of time is enclosed along with the required extension fee.

Authorization is hereby given to charge any deficiency in fees or any other fees in connection with the above-identified patent application to our Deposit Account No. 23-0920.

Claims 1-24 were pending prior to this amendment.

Claims 7-9, 15, 17, and 19-21 have been canceled.

The matters objected to in Claims 1-24 have been corrected or canceled as per the Primary Examiner's requests in order to make the claims more definite and clear and better comply with 35 USC 112, ¶ 2nd.

Claims 1-6, 10-14, 16, 18, and 22-24 have been amended to more particularly point out and distinguish applicant's inventions over the references of record. Antecedent basis and support for the amended matter in the claims are found in the specification, original claims and drawings.

Claims 1-6, 10-14, 16, 18, and 22-24 are presently pending for the consideration of the Primary Examiner.

Timely filed Terminal Disclaimers are enclosed in compliance with 37 CFR 1.321(c) to overcome an actual or provisional rejection based on a non-statutory double patenting ground. As indicated in the terminal disclaimers, the conflicting Application No. 10/753,947; Application No. 10/386,980; and Application No. 10/339,264 are commonly owned with this Application No. 10/789,020, as per the requirements of 37 CFR 1.130(b).

Accordingly, the enclosed Terminal Disclaimers obviate the provisional rejection of Claims 1-6, 8, 10, 13-18, 20, and 22 under the judicially created doctrine of obvious-type double patenting as being unpatentable over Claims 1, 6, 14, 16, 21, 29 and 34-39 of co-pending Application No. 10/753,947.

Furthermore, the enclosed Terminal Disclaimers obviate the provisional rejection of Claims 1-9 and 13-21 under the judicially created doctrine of obvious-

type double patenting as being unpatentable over Claims 1, 3-5, 7-9, 11-14, 16-18, 21, 23-27, and 29-33 of co-pending Application No. 10/386,980.

Moreover, the enclosed Terminal Disclaimers obviate the provisional rejection of Claims 1-10 and 13-22 under the judicially created doctrine of obvious-type double patenting as being unpatentable over Claims 1-8, 17-18, 37-38, 40-43, and 46-47 of co-pending Application No. 10/339,264 in view of Young U.S. Patent No. 6,561,640 B1 (Young) or Biegelsen et al. U.S. Patent No. 6,536,889 B1 (Biegelsen et al.).

Claim 1 as presently amended pertains to a method for printing and curing ultraviolet (UV) curable ink. In the method, a UV curable ink is printed with a printing head on products, articles or other objects at a printing station. Advantageously, UV light is emitted at a substantially constant intensity from arrays of UV light-emitting diode (LED) chips at the curing station. In the method, the UV LED chips and the printed products, articles, or other objects are moved relative to each other. Desirably, UV light emitted from the UV LED chips is uniformly applied, distributed or swept on the UV curable ink on the printed products, articles, or other objects at the UV curing station while the UV LED chips and printed products, articles, or other objects are moved relative to each other. Significantly, the UV curable ink is uniformly cured on the UV curable products, articles, or other objects as the UV light is uniformly applied, distributed, or swept on the UV curable ink. Desirably, applicant's method provides a uniform distribution of light across a linear plane by positioning LEDs in one or more rows that will maintain an equal amount of light under them or where light passes over them. This is important as the cure created by the UV light will vary as the intensity varies. Desirably, the physical properties of the finished cured ink will be uniform if the UV light applied to the ink is uniform.

Young and Biegelsen et al. are very different than applicant's method as recited in applicant's amended Claim 1 and applicant's other amended claims. In contrast to applicant's method as recited in applicant's amended Claim 1, Young and Biegelsen et al. do not disclose emitting UV light at a substantially constant intensity. Furthermore, Young and Biegelsen et al. do not disclose uniformly applying, distributing or sweeping UV light emitted from UV LED chips on UV curable ink, let alone do so while the UV LED chips and printed products, articles or other objects are moved relative to each other, as specified in applicant's amended Claim 1. Moreover, Young and Biegelsen et al. do not disclose uniformly curing UV curable ink, nor do

so as UV light is uniformly applied, distributed, or swept on the UV curable ink, as required in applicant's amended Claim 1.

Also, it is respectfully submitted that Young is not an effective reference because the priority date of January 9, 2003 of applicant's subject application is before the May 13, 2003 issue date of Young.

Furthermore, Biegelsen et al. is not a proper reference against applicant's claims because the priority date of January 9, 2003 of applicant's subject application is before the March 25, 2003 issue date of Biegelsen et al.

A prior patent is a reference only for what it clearly discloses or suggests; it is improper use of a patent as a reference to modify it to that which it does not suggest; *In re Hummer*, 113 USPQ 66 (CCPA 1957). See also *In re Stencel*, 4 USPQ2d 1071, 1073 (Fed. Cir. 1987).

Applicant's amended Claims 2-6 and 10-12 are directly dependent upon applicant's amended independent Claim 1 and, therefore, necessarily require all the method steps, features and limitations of applicant's amended Claim 1, as well as additional method steps, features and limitations, which in combination with the method steps, features and limitations of applicant's amended Claim 1, are not fairly taught or suggested by Young and Biegelsen et al., such as reciprocating or oscillating the UV LED chips in proximity to the UV curable ink, maintaining the intensity and output of the UV light generally constant, maintaining the temperature of the UV LED chips generally constant, emitting fluorescent light upon the UV curable ink, heating the freshly printed UV curable ink, emitting infra-red light on the UV curable ink, etc.

Applicant's amended independent Claim 13 is directed to an ultraviolet (UV) curing apparatus for curing UV curable ink from an ink jet printer or other printer. In the UV curing apparatus, sets of UV light-emitting diode (LED) chips are positioned adjacent a printing head of an ink jet printer or other printer to emit UV light upon UV curable ink dispensed from the printing head upon products, articles or other objects. A mechanism is provided to cause relative movement between these sets of UV LED chips and the printed products, articles or other objects. Advantageously, a controller is operatively connected to the UV LED chips to control and maintain the intensity of the UV light emitted from the UV LED chips at a substantially constant level to uniformly apply and distribute UV light on the UV curable ink and uniformly cure the UV curable ink.

The cited references of Young and Biegelsen et al. are not relevant to applicant's amended independent Claim 13 for many of the same reasons indicated above with respect to applicant's amended Claim 1. Significantly, Young and Biegelsen et al. do not disclose a controller to control and maintain the intensity of the UV light emitted from UV LED chips at a substantially constant level to uniformly apply and distribute UV light onto UV curable ink and uniformly cure the UV curable ink, as required in applicant's amended independent Claim 13.

It is submitted that it would not be an obvious matter of choice for one skilled in the art to reconstruct Young, Biegelsen et al., and the other references to achieve applicant's invention as recited in applicant's claims without the benefit of hindsight of applicant's disclosure and such is clearly improper. As the Federal Circuit Court of Appeals (formerly the U.S. Court of Customs and Patent Appeals) has emphasized, the Primary Examiner must be ever alert not to read obviousness into an application on the basis of applicant's own statements and must further view the prior art without reading into that art applicant's teachings, *In re Spinnoble*, 405 F. 2d 578, 160 USPQ 273 (CCPA 1969). It is not enough for a valid rejection of the patent application to view the prior art in retrospect; once applicant's disclosure is known, the prior art should be viewed by itself to see if it fairly discloses what the applicant has done, *In re Schaffer*, 220 F. 2d 476, 108 USPQ 326 (CCPA 1956).


Applicant's amended Claims 14, 16, 18, and 22-24 are directly dependent upon applicant's amended independent Claim 13 and, thereby, require all the structural elements, features and limitations of applicant's amended independent Claim 13, as well as additional elements, features and limitations, which in combination with the claimed elements, features and limitations of applicant's amended independent Claim 13 are not fairly taught or suggested by Young and Biegelsen et al., such as a reciprocating mechanism to reciprocate the UV LED chips transversely of the products, articles, or other objects; a sensor to sense the temperature of the UV LED chips; a fluorescent lamp to emit fluorescent light on the UV curable ink; a heat lamp to heat the freshly printed UV curable ink; an infra-red lamp to emit infra-red light on the UV curable ink, etc.

In summary, applicant's method and apparatus, as recited in the amended claims, provide a very useful and user friendly process and equipment to more effectively cure UV curable ink, which is not anticipated or obvious from Young and Biegelsen et al.

Inasmuch as the preceding amendment complies with the Primary Examiner's requests, cures the Primary Examiner's objections and patentably distinguishes applicant's remaining claims over the cited prior art references of record, it is respectfully submitted that the above-identified application is now in condition for allowance. A Notice of Allowance is respectfully requested.

The Primary Examiner is invited and encouraged to contact the undersigned attorney in order to expedite this application to allowance, if the preceding does not already place the above-identified application in condition for allowance.

Respectfully submitted,


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